

AGENDA

November 6-7, 2001

Tuesday, November 6, 2001

- 7:30 a.m. *Registration / Continental Breakfast*
- 8:30 a.m. *Welcome*
Lawrence A. Ruth, Senior Management & Technical Advisor
Office of Coal and Environmental Systems
U.S. DOE National Energy Technology Laboratory
Morgantown, West Virginia
Pittsburgh, Pennsylvania
- 8:45 a.m. *Zero Emission — The Next Goal*
Klaus Lackner, Ewing Worzel Professor of Geophysics
Columbia University
New York, New York

Session 1. Technology Development

Session Chair: Richard A. Dennis, U.S. DOE NETL

- 9:30 a.m. 1.1 *Turbine Drive Gas Generator for Zero Emission Power Plants*
Stephen E. Doyle
Clean Energy Systems, Inc.
Sacramento, California
- 10:00 a.m. 1.2 *Development of Foster Wheeler's Vision 21 Partial Gasification Module*
Archie Robertson
Foster Wheeler Development Corporation
Livingston, New Jersey
- 10:30 a.m. *Break*

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- 11:00 a.m. 1.3 *Fuel-Flexible Gasification-Combustion Technology for Production of Hydrogen and Sequestration-Ready Carbon Dioxide*
George Rizeq
GE Energy and Environmental Research Corporation
Irvine, California
- 11:30 a.m. 1.4 *Fuel Cell/Turbine Ultra High Efficiency Power System*
Hossein Ghezel
FuelCell Energy, Inc.
Danbury, Connecticut
- 12:00 p.m. 1.5 *Zero Emission Power Plants Using Solid Oxide Fuel Cells and Oxygen Transport Membranes*
Larry A. Shockling
Siemens Westinghouse Power Corporation
Pittsburgh, Pennsylvania
Gervase M. Christie
Praxair, Inc.
Tonawanda, New York
- 12:30 p.m. 1.6 *Overview of NETL In-House Vision 21 Activities*
David J. Wildman
U.S. DOE National Energy Technology Laboratory
- 1:00 p.m. *Lunch*

Session 2. Technology Development (Materials)

Session Chair: Richard B. Read, U.S. DOE NETL

- 2:00 p.m. 2.1 *Oxide Dispersion Strengthened Heat Exchanger Tubing*
Mark A. Harper
Huntington Alloys — A Special Metals Corporation
Huntington, West Virginia
- 2:30 p.m. 2.2 *Hydrogen Separation Membranes for Vision 21 Fossil Fuel Plants*
Shane E. Roark
Eltron Research, Inc.
Boulder, Colorado

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- 3:00 p.m. 2.3 *Novel Composite Membranes for Hydrogen Separation in Gasification Processes in Vision 21 Energy Plants*
Michael Schwartz
ITN Energy Systems, Inc.
Littleton, Colorado

3:30 p.m. **Poster Session**

New Project

- P.1 *Impermeable Thin Al₂O₃ Overlay for TBC Protection from Sulfate and Vanadate Attack in Gas Turbines*
Scott X. Mao
University of Pittsburgh
Pittsburgh, Pennsylvania

NETL In-House Projects

- P.2 *Fuel Flexibility in Gasification*
T. Robert McLendon
U.S. DOE National Energy Technology Laboratory
- P.3 *Circulating Fluid-Bed Technology for Advanced Power Systems*
Lawrence J. Shadle
U.S. DOE National Energy Technology Laboratory
- P.4 *Desulfurization Sorbent Development*
Ranjani V. Siriwardane
U.S. DOE National Energy Technology Laboratory
- P.5 *Selective Catalytic Oxidation of Hydrogen Sulfide to Elemental Sulfur from Coal-Derived Fuel Gases*
Todd H. Gardner
U.S. DOE National Energy Technology Laboratory
- P.6 *Hot/Warm Gas Cleanup*
Larry A. Bissett
U.S. DOE National Energy Technology Laboratory

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- P.7 *The Fuel Processing Research Facility — A Platform for Synthesis Gas Technology R&D*
Michael J. Monahan
U.S. DOE National Energy Technology Laboratory
- P.8 *Characterization of a Rigid Barrier Filter System*
T.K. Chiang
U.S. DOE National Energy Technology Laboratory
- P.9 *Control of a Circulating Fluidized Bed*
Edward J. Boyle
U.S. DOE National Energy Technology Laboratory
- P.10 *Overview of the NETL Onsite Fuel Cell R&D Program*
Randall S. Gemmen
David A. Berry
U.S. DOE National Energy Technology Laboratory
- P.11 *High-Temperature Testing of Advanced Materials in Actual Coal Combustion Environments*
Mahendra P. Mathur
U.S. DOE National Energy Technology Laboratory
- P.12 *Fuel Flexibility in Combustion*
Mark C. Freeman
U.S. DOE National Energy Technology Laboratory
- P.13 *Advanced Steam Generators*
George A. Richards
U.S. DOE National Energy Technology Laboratory
- P.14 *CFD Analysis of Cofiring Biomass and Coal in Industrial Boilers*
Mahendra P. Mathur
U.S. DOE National Energy Technology Laboratory

5:00p.m. Adjourn

6:00 p.m. *Social / Dinner at the Historic Clarion Hotel Morgan*
(Dinner will begin at 7:00 p.m.)

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Wednesday, November 7, 2001

8:00 a.m. *Registration/Continental Breakfast*

Session 3. Modeling and Process Simulation

Session Chair: Isaac K. Gamwo, U.S. DOE NETL

8:30 a.m. 3.1 *Virtual Simulation of Vision 21 Energy Plants*
Madhava Syamlal
Fluent, Inc.
Morgantown, West Virginia

9:00 a.m. 3.2 *LES Software for the Design of Low Emission Combustion Systems
for Vision 21 Plants*
Clifford E. Smith
CFD Research Corporation
Huntsville, Alabama

9:30 a.m. 3.3 *A Computational Workbench Environment for Virtual Power
Plant Simulation*
Michael J. Bockelie
Reaction Engineering International
Salt Lake City, Utah

10:00 a.m. *Break*

10:30 a.m. 3.4 *Coarse-Grid Simulation of Reacting and Non-Reacting Gas-Particle
Flows*
Peter N. Loezos
Princeton University
Princeton, New Jersey

11:00 a.m. 3.5 *Systems Integration Methodology*
Ashok Rao
Advanced Power and Energy Program, University of California-Irvine
Irvine, California
Byron Washom
Spencer Management Associates
Alamo, California

Proceedings of the 2001 Vision 21 Program Review Meeting

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- 11:30 a.m. 3.6 *Overview of Computational Energy Sciences at NETL*
 Jack Halow
 U.S. DOE National Energy Technology Laboratory
- 12:00 p.m. 3.7 *Closing Remarks*
 Lawrence A. Ruth
 U.S. DOE National Energy Technology Laboratory
- 12:15 p.m. *Adjourn*